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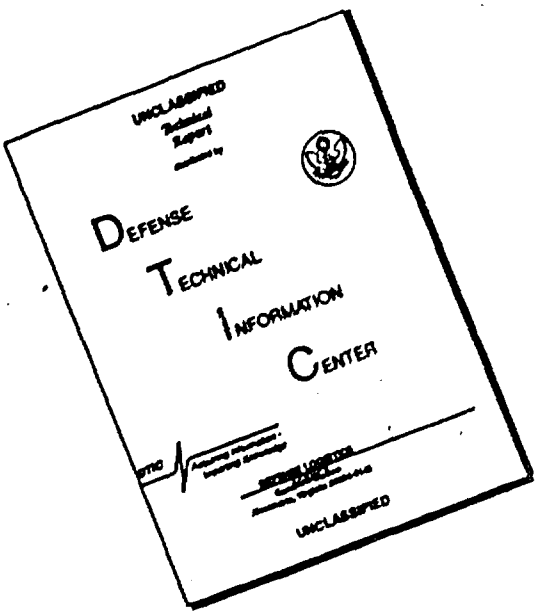

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HRB H R B - S I N G E R , I N C .
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8 July 1963
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FROM: HRB-Singer, Inc.
Science Park, P. O. Box 60
State College, Pennsylvania

TO: Aeronautical Systems Division
Air Force Systems Command
United States Air Force
Wright-Patterson Air Force Base
Ohio

Attention: Mr James Sprouse, ASWVCR

Subject: Contract AF 33(657)-10276
Monthly Status Report for June

Gentlemen:

This is the fifth Monthly Contract Status Report on this contract for a Closed Loop Nitrogen-Neon Cooler This report was prepared under Contract AF 33(657)-10276 HRB-Singer Project No. 419.

I. OBJECTIVE

The basic objective of this program remains the same, that of procuring a closed loop nitrogen-neon cooler with interchangeable Ge:Hg and InSb detectors. The technique by which this objective will be met was altered in April by supplement to the contract dated 15 April 1963. This supplement permits the use of a modified Sterling Cycle cooler to reach the required temperatures and waives the requirement that the compressor must be physically removed from the cryostat by at least 25 feet.

The supplement to the contract will then permit the use of three Norelco closed loop coolers with interchangeable InSb and Ge:Hg detectors in place of the one Air Products and Chemicals closed loop cooler.

II. SUMMARY OF PROGRESS TO DATE

The definitized purchase order for the three Norelco Cryogen coolers for this project was not let in June, as anticipated, but authorization to

proceed was given. In the meantime, some consideration to a truly interchangeable detector was given to this particular problem. This consideration led to a conference between Norelco, Raytheon and HRB-Singer on 26 June and details of such a configuration were worked out.

In general what we have considered is a detector-dewar combination, either permanently evacuated or supplied with a Richard's valve for pumping, and a configuration of the Norelco cooler which makes available a cold finger on which the detector-dewar combination can be mounted. There is no vacuum to be supplied with the cold finger as the temperature of the cold finger will effectively freeze out any gas trapped between the inner wall of the detector-dewar and the cold finger, except hydrogen and helium and the vapor pressure of these gases is extremely low.

In addition, it is planned to provide a "shield" around the mounted detector-dewar which will provide the following functions, in addition to protection of the detector-dewar against mechanical loads. First, the O.D. of the shield will be made 1.5", the I.D. of the focusing ring on the RECONOFAX IV and VI equipments. Thus the "shield" will provide radial alignment of the detector. Second, the outer wall of the "shield" will be threaded and a locking ring will be provided to mount on this thread. The ring can be positioned with a standard microscope fixture so that when the complete cooler-detector is lowered into the focusing ring of the RECONOFAX IV or VI, the detector will lie in the primary focal plane of the optics.

III. SUMMARY OF TRIPS, MEETINGS AND CONFERENCES

Refer to Summary of Progress to Date above.

HRB

IV. PROGRAM FOR NEXT INTERVAL

It is anticipated that final details of the Norelco cooler, as modified to meet the requirements of this project, as well as details on detector-dewar, will be worked out in July and definitized purchase orders placed for these parts. It is conceivable that it will still be possible to meet the present delivery schedule, but a more realistic schedule would call for a delay of approximately one month.

Very truly yours,

John P. Walker, Jr.
Project Director